

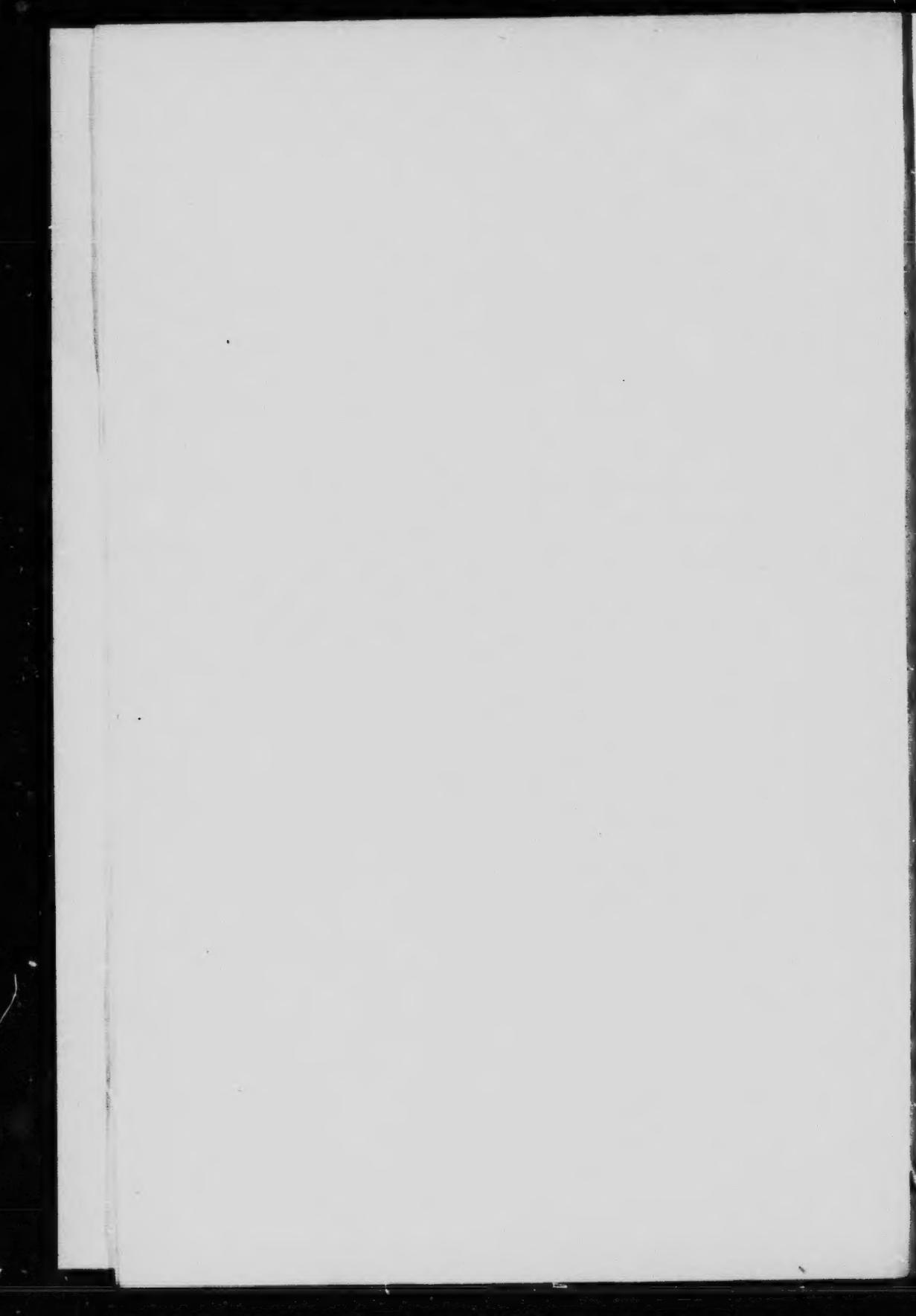
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Deputy Minister.

LABORATORY

OF THE

INLAND REVENUE DEPARTMENT

OTTAWA, CANADA

BULLETIN No. 201

Flavouring Extract of Vanilla.

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OTTAWA, March , 1910.

W. J. GERALD, Esq.,
Deputy Minister of Inland Revenue.

SIR,—I have the honour to hand you a report dealing with 77 samples, purchased throughout Canada, as Flavouring Extract of Vanilla, in December last.

The last examination of this article was reported in Bulletin No. 89 (Sept. 1903). That report showed, in 21 samples, the following variations of character:—

Vanillin,	varies in amount from	0·012	to	0·268
Coumarin	"	0·016	"	0·160
Alcohol	"	5·470	"	50·470
Sugar	"	0·600	"	25·000

The present inspection (77 samples) indicates still greater variation:—

Vanillin	varies in amount from	0·000	to	1·419
Coumarin	"	0·000	"	0·186
Alcohol	"	1·300	"	52·800

The question, 'What is wanted, or expected, when a purchaser demands Extract of Vanilla?' seems pertinent.

The dried, fermented pod of *Vanilla Planifolia*, is an article of export from the West Indian Islands, Mexico, and some other localities. The extract of Vanilla is undoubtedly supposed to be prepared from this pod, by maceration in alcohol, with or without the addition of sugar and glycerin. The United States defines Extract of Vanillin thus:—'Vanilla Extract is the flavouring extract prepared from the dried, cured fruit of *Vanilla Planifolia*, with or without sugar or glycerin, and contains in 100 cubic centimetres, the soluble matters from not less than 10 grammes of the Vanilla bean.'

The extractive matters referred to are, a crystallin substance known as *Vanillin*, and certain resins; and the characteristic flavour of genuine vanilla is due to the combined flavours of these extractives. Undoubtedly the vanillin contributes chiefly to this total flavour; but that it does not entirely account for it is manifest when we consider that the most highly valued beans are not those which yield the highest percentage of vanillin. Thus Tiemann and Harmann (1) found as follows:—

Mexican beans	1·69 p.c.	Vanillin
Bourbon "	2·48 "	"
Java "	2·75 "	"

Vanillin manufactured from Eugenol (and other sources) is an article of commerce, and is chemically identical with the vanillin from the bean. It is, however, quite evident that a solution of manufactured (Synthetic) vanillin, cannot be regarded as identi-

(1) Leach—Food Analysis, &c., p. 730.

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cal with the flavouring extract, as above defined. The difference is one of *flavour* due to the presence of specific resins (and probably small amounts of undetermined matters) peculiar to the bean, and as essential to the production of a true vanilla flavour as the vanillin itself.

In order to ascertain what amounts of vanillin may be present in the genuine extract, Winton and Silvermann (2) prepared five extracts, according to the formula given in the U. S. Pharmacopeia, and obtained as follows:—

Grade of Bean.	Specific Gravity.	Vanillin.	Alcohol (wgt)	Total Residue.	Cane Sugar.	Non-sugar Solids
Mexican (whole).....	1·0159	0·125	37·96	22·60	19·90	2·70
" (cut)	1·0146	0·065	39·92	23·10	19·20	3·90
South American (whole).....	1·0109	0·215	38·58	22·00	19·00	3·00
Bourbon (whole).....	1·0166	0·138	38·32	23·13	20·40	2·73
Tahiti (whole).....	1·0104	0·108	38·84	21·73	20·00	1·75

From this it appears that the vanillin in genuine extracts may vary from about 0·065 to 0·215. It seems fair to conclude that where the vanillin much exceeds 0·200 per cent in an extract artificial or synthetic vanillin has been used.

Coumarin is a substance which somewhat resembles vanillin in its flavour, but is quite distinct chemically. It is found in the Tonka bean, and is also prepared synthetically. On account of its cheapness it is much used to adulterate vanilla extract, and it will be seen that in the collection now reported it is present in 61 out of 77 samples examined. In one case it entirely replaces vanillin. The flavour of Coumarin is not identical with that of vanillin. Leach (3) says of it:—"The odour of Coumarin is more pungent and penetrating than that of vanillin, and in mixtures is apt to predominate over the milder and more delicate odour of vanillin."

There can be no doubt that extracts containing coumarin should be required to announce the fact, either by explicit statement, or by being sold as compounds.

The use of alcohol is necessary in preparing the genuine extract of vanilla, not so much to dissolve the vanillin which is rendered more soluble by the presence of sugar, as in order to get the characteristic resins into solution. Hence, an extract cannot meet the requirements of a true vanilla bean extract, unless it contains from 30 to 40 per cent. of alcohol.

In the absence of any legal standard for Flavouring Extract of Vanilla, it is impossible for me to express an opinion upon the samples now reported. In a general way it may be said (1) that those containing notably more than 0·200 per cent. of vanillin are to be separated from synthetic vanillin. There are some 31 samples of the present collection which fall in this class. (2) That those which contain less than 30 per cent. of alcohol, are either not made from the bean, or are necessarily lacking in those odoriferous resins which are characteristic of the vanilla bean. Some 36 samples fall into this class. (3) Those samples which contain more than traces of Coumarin, are not, in the truest sense, extracts of vanilla, and should be sold as compounds. Some 58 samples must be thus classified.

The report now submitted, together with that published in Bulletin 89, will enable the public to judge of the character of Commercial Vanilla Extracts, and will also furnish material for the defining of this article, under section 26 of the Adulteration Act.

I beg to recommend the publication of this report as Bulletin No. 201.

I have the honour to be, sir,

Your obedient servant,

A. MCGILL,

Chief Analyst.

(2) Report Conn. Agr. Station—1901, 150.

(3) Foods, &c.,—p. 734.

BULLETIN No. 201—FLAVOURING EXTRACT OF VANILLA.

Date of Collection.	Nature of Sample.	Name and Address of Vendor.	Cost.	Name and Address of Manufacturer or Furnisher, as given by the Vendor.	RESULTS OF ANALYSIS.						
					Quantity. Grams.	Vanillin per 100cc.	Alcohol by Volume, per cent.	No. of Sample.	p. c.	p. c.	p. c.
DISTRICT OF NOVA SCOTIA—R. J. WAUGH, INSPECTOR.											
1909.											
Dec. 6	Flavouring Extract of Vanilla.	41756 Nat. Drug. & Chem. Co., Halifax, N. S.	3 bota	20 Vendors.		" Sovereign "		.....	·236	·038	52 8
" 7	"	41757 John Tobin & Co., Halifax, N.S.	3 "	45 Sheriff, Toronto.				.....	·305	·028	33 1
" 7	"	41758 Chisholm & Co., Halifax, N.S.	3 "	45 J. E. Gash, Halifax, N.S.				.....	·272	·057	17 7
" 7	"	41759 R. B. Seaton & Co., Halifax, N.S.	3 "	38 Robinson Mfg. Co., Toronto				.....	·288	·034	26 5
" 13	"	41740 S. L. Cross, Kentville, N. S.	3 "	30 Pure Gold Mfg. Co., Toronto				.....	·073	·036	37 1

DISTRICT OF PRINCE EDWARD ISLAND—THEO. MOORE, INSPECTOR.

Dec.	6	Flavouring Extract of Vanilla.	38601 C. C. Carleton, Souris.....	6 oz.	60 Chamberland Med. Co. To- ronto.	Chamberland's superior va- nilla flavouring compound	·476	·047	10 5	38601
	7	"	38602 J. C. Ferguson, Souris.....	6 "	60 H. K. Wampole & Co., Perth, Ont.	"	·188	nil.	31 3	38602
	8	"	38603 F. T. Reardon, Charlottetown..	6 "	60 F. F. Dally Co. Ltd. Han- ilton.	Dalley's pure fruit extract	·070	·043	30 6	38603
	9	"	38604 D. McKenzie, Kensington ..	7½ "	75 Imperial Extract Co., To- ronto	Sheriff's Imperial quinte- sence true vanilla.	·268	·029	37 5	38604
	10	"	38605 G. W. Warren, Summerside....	6 "	60 The Baird Co. Limited, Woodstock, N. B.	Baird's superior extra va- nilla flavouring extract, Highly concentrated.	·241	·044	31 7	38605

DISTRICT OF NEW BRUNSWICK—J. C. FERGUSON, INSPECTOR.

Dec.	2	Flavouring Extract of Vanilla.	39613 Nat. Drug. & Chem. Co., Ltd., St. John, N.B.	3 bota	45 Vendors	" Star " Brand	" Star " Brand	" Dearborn " brand	" Dearborn " brand	39613
" 3	"	"	39614 Dearborn & Co., St. John, N.B.	3 "	75 "	"	"	"	"	39614

DISTRICT OF QUEBEC—E. BELAND, INSPECTOR.

1909.	1	Flavouring of Vanilla.	Extract	36682	J. M. Ouillette, St. Anselme.....	30	W. Brunet & Cie, Québec.....	339	nil.	32-0	36682
"	1	"	Charle Audet, St. Anselme.....	36683	Charle Audet, St. Anselme.....	3	J. B. Renaud & Cie, Québec.....	000	07-8	13-7	36683
"	1	"	"	36684	J. B. Cadaret, St. Anselme.....	3	White & Turner, Québec.....	129	07-7	8-8	36684
"	1	"	"	36685	Arthur Lacombe, St. Claire.....	3	Dr. Ed. Morin, Québec.....	33-8	33-8	36685	
"	1	"	"	36686	Joseph Brown, St. Claire.....	3	Unknown.....	35-4	03-5	18-0	36686
"	1	"	"					022	nil.		

DISTRICT OF ST HYACINTHE - I C BOUTEIL INSPECTOR

Dec.	6	Flavouring of Vanilla.	Extract	38874	Alp. Casabon, Sorel	3 "	30	H. Jonas & Cie, Montreal.	Double strength.	(39)	nil.	17.7	38874
"	7	"	"	38875	H. Tourangeau, Vercheres	3 "	25	Lyman's Ltd., Montreal	" Standard " brand. . . . .	.353	.128	.36.5	38875
"	9	"	"	38876	L. Ed. Chouquette, Farnham	3 "	30	G. A. Truax, Farnham	" Bee " brand. . . . .	.611	.128	.78	38876
"	20	"	"	38877	H. P. Wales, Richmond	3 "	30	Birks, Corner & Co., Mont- real	Diamond brand concentra- ted. . . . .	.579	.063	1.3	28877
"	21	"	"	38878	A. Leclair, Sherbrooke	3 "	30	Integrity Mills, Toronto	Double strength. . . . .	.940	.110	7.8	38878

DISTRICT OF MONTREAL — LI COSTIGAN INSPECTOR

BULLETIN No. 201—FLAVOURING EXTRACT OF VANILLA.

Date of Collection.	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Cost.	Name and Address of Manufacturer or Furnisher, as given by the Vendor.	Inspector's Report. (Is not an expression of opinion).	RESULTS OF ANALYSIS.		
							Quantity.	Cents.	No. of Sample
DISTRICT OF OTTAWA—J. A. RICKEY, INSPECTOR.									
Dec. 1909.	3 Flavouring Extract of Vanilla.	42856 Goodall Bros., Ottawa.....	3 lbs. 60	McLaren's, Ltd., Hamilton "McLaren's"	"	"	.089	.050	.30 .6
" 4	" "	42858 Wm. York, Ottawa	3 "	H. N. Baker & Sons, Ottawa "Sheriff's"	"	"	.272	.090	.37 .4
" 6	" "	42860 W. B. Graham, Ottawa.....	3 "	McLaren's, Ltd., Hamilton "McLaren's true vanilla."	"	"	.145	.043	.36 .8
" 14	" "	42862 Jas. L. P. Sanders, Kempville, 3 "	75	Davis & Lawrence Co. Ltd. "Davis & Lawrence"	"	"	.174	nil.	.42862
" 16	" "	42864 J. A. Gremill, Smith's Falls, 3 "	30	Unknown.....	"	"	.083	.084	.15 .3
DISTRICT OF KINGSTON—JAS. HODAN, INSPECTOR.									
Dec. 1	1 Flavouring Extract of Vanilla.	42772 R. Templeton, Belleville	6 oz.	Vendor	"	"	.087	.041	.32 .7
Nov. 29	" "	42773 C. S. Proves, Kingston	6 "	50	"	"	.206	nil.	.45 .4
" 30	" "	42774 N. G. Polson, Kingston	6 "	35	"	"	.251	nil.	.49 .6
Dec. 1	" "	42775 W. H. A. Semple, Cobourg	6 "	20	"	"	.549	.073	.42775
" 1	" "	42776 H. Mitchell, Port Hope	6 "	50	"	"	.722	.104	.32 .4
DISTRICT OF TORONTO—H. J. DAGER, INSPECTOR.									
Dec. 17	17 Flavouring Extract of Vanilla.	41431 Imperial Cocoa & Spice Co., Ltd., Hamilton	3 lbs.	35 Vendors	"	"	Red Feather quality flavoring extract.	.313 Nil...	.21 .5
" 17	" "	41432 Gen. E. Bristol & Co., Hamilton. 3 "	"	30 Imperial Spice Co., Ltd., Hamilton	"	"	Labeled Vanilla Empire triple extract.	.042	.4 .7

"	17	"	41433 Smart's Tea Co., Hamilton	..	3 "	30 McLaren, Ltd., Hamilton	Maple leaf extract of vanilla	496	040	17 7	41433
"	21	"	41434 The J. M. Lewes Co., Ltd., Toronto	To 3 "	50 Vendors	Labelled Vanilla	356	097	14 7	41434	
"	23	"	41435 Robinson Mfg. Co., Hamilton	..	20 "	"	081	094	10 0	41435	

DISTRICT OF LONDON—T. KIDD, INSPECTOR

Dec.	6	Flavouring Extract of Vanilla.	30888 Alexander Steward, Guelph.	3 bots.	30 Vendor.	40 Nat. Drug & Chem. Co., Hamilton.	138	.010	39 8	30888
"	8	"	30876 E. O. Ritz & Co., Berlin.	3 "	45 Vendor.	136	.005	18 1	30876
"	10	"	30887 H. M. Myers, Stratford	3 "	45 Vendor.	086	.088	29 3	30887
"	11	"	30888 Chas. Andrews, Seaforth.	3 "	30 Can. Spice & Grocery Co., London, Ont.	.....	.....	100	.031	13 1	30888
"	13	"	30890 James Wilson, Goderich	3 "	45 Toronto Pharmacy, Toronto	.....	.....	199	.046	41 5	30890
"	16	"	44701 Peter Dill, Dublin	3 "	30 Robertsons Mfg. Co., Toronto.	.....	.....	078	.113	10 9	44701
"	17	"	44705 Wm. Stoneman, Mitchell	3 "	30 F. F. Dalley Co., Ltd., Hamilton.	.....	.....	153	.098	29 9	44705

DISTRICT OF WINDSOR—JNO. TALBOT, INSPECTOR.

Dec.	6	Flavouring Extract of Vanilla.	42635 Poustie & Co., Aylmer	3 bots.	30 Imperial Extract Co., Toronto.	30 F. F. Valley Co., Ltd., Labelled Gold seal.	30 F. P. Reid & Co., Moncton, N.B.	30 F. F. Valley Co., Ltd., Labelled Gold seal.	036	.011	18 8	42635
"	6	"	42660 W. J. Gibson, Tilsonburg	3 "	30 F. F. Valley Co., Ltd., Labelled Gold seal.	30 F. F. Valley Co., Ltd., Labelled Gold seal.	30 F. P. Reid & Co., Moncton, N.B.	30 F. F. Valley Co., Ltd., Labelled Gold seal.	128	.026	14 2	42660
"	7	"	42661 Bay F. Gibson, Tilsonburg	3 "	25 Hamilton Chem. Works	Topical flavouring extract.	Pyramid brand vanilla flavouring extract.	149	.036	19 4	42666	
"	8	"	42672 R. Edwards, Mimico	3 "	30 F. P. Reid & Co., Moncton, N.B.	Pyramid brand vanilla flavouring extract.	Pyramid brand vanilla flavouring extract.	183	.186	10 3	42677	
"	9	"	42679 Fred. C. Harp, Brantford	3 "	25 F. F. Valley Co., Ltd., Hamilton.	Labelled Gold seal.	Labelled Gold seal.	190	.076	29 3	42679	

BULLETIN No. 201—FLAVOURING EXTRACT OF VANILLA.

Date of Collection.	No. of Sample.	Nature of Sample.	Name and Address of Vendor.	Cost.	Results of ANALYSIS.					
					Quantity.	Cent.	Vanillin per 100cc.	Coumarin per 100cc.	Alcohol by per 100cc.	No. of Sample
1909.	6	Flavouring Extract of Vanilla.	39821 Blue Ribbon Mfg. Co., Winnipeg	3 bota.	50	Vendors.....	“Blue Ribbon” extract.....	“321 Nil.”	43·6	39821
"	6	"	39822 Campbell Bros. & Wilson, Win- nipeg.	3 "	40	"	“Royal Shield” extract.....	“220”	15·3	39822
"	7	"	39823 The Dyson Co., Winnipeg.	3 "	65	"	“Red Cross” extract.....	1·317	32·7	39823
"	7	"	39824 Gold Standard Mfg. Co., Winni- peg.	3 "	45	"	“Gold Standard” extract.....	“174 Nil.”	30·3	39824
"	7	"	39825 The White Star Mfg. Co., Winni- peg.	3 "	30	"	“White Star” extract.....	“693”	35·2	39825

DISTRICT OF MANITOBA—A. C. LARIVIÈRE, INSPECTOR.

1909.	Dec.	Flavouring Extract of Vanilla.	Name and Address of Vendor.	Cost.	Quantity.	Cent.	Vanillin per 100cc.	Coumarin per 100cc.	Alcohol by per 100cc.	No. of Sample	Inspector's Report. (is not an expression of opinion).
1909.	6	Flavouring Extract of Vanilla.	39821 Blue Ribbon Mfg. Co., Winnipeg	3 bota.	50	Vendors.....	“Blue Ribbon” extract.....	“321 Nil.”	43·6	39821	“
"	6	"	39822 Campbell Bros. & Wilson, Win- nipeg.	3 "	40	"	“Royal Shield” extract.....	“220”	15·3	39822	“
"	7	"	39823 The Dyson Co., Winnipeg.	3 "	65	"	“Red Cross” extract.....	1·317	32·7	39823	“
"	7	"	39824 Gold Standard Mfg. Co., Winni- peg.	3 "	45	"	“Gold Standard” extract.....	“174 Nil.”	30·3	39824	“
"	7	"	39825 The White Star Mfg. Co., Winni- peg.	3 "	30	"	“White Star” extract.....	“693”	35·2	39825	“

DISTRICT OF CALGARY—R. W. FLETCHER, INSPECTOR.

Dec.	10	Flavouring Extract of Vanilla.	Name and Address of Vendor.	Cost.	Quantity.	Cent.	Vanillin per 100cc.	Coumarin per 100cc.	Alcohol by per 100cc.	No. of Sample	Inspector's Report. (is not an expression of opinion).
"	10	"	43626 L. B. Cochrane, Medicine Hat.	3 bota.	75	Gold Standard Mfg. Co., Winnipeg.	“269 Nil.”	33·8	43626	“	
"	10	"	43627 H. H. Ireland Co., Medicine Hat	3 "	1·05	McLaren's Ltd., Hamilton.	“110”	32·4	43627	“	
"	10	"	43628 R. Dunn, Medicine Hat.	3 "	75	Gold Standard Mfg. Co., Winnipeg.	“191”	26·2	43628	“	
"	17	"	43629 Copas & Emerson, Calgary.	3 "	75	G. F. Sutton Sons Co., London, Eng.	“264 Nil.”	48·9	43629	“	
"	17	"	43630 W. A. Georgeson Co., Ltd., Cal-	3 "	75	Vendors.....	“188 Nil.”	41·9	43630	“	

DISTRICT OF VANCOUVER—J. F. POWER, INSPECTOR.

DISTRICT OF VICTORIA—D. O'SULLIVAN, INSPECTOR.

Dec.	10	Flavouring of Vanilla.	Extract	41594	Windsor Grocery Co., Victoria, B.C.	75	Pure Gold Mfg. Co., Toronto.	To-Pure Gold "vanilla flavour-ing."	.066	.044	37.8	41594
"	10	"	"	41595	The Saunderson Grocery Co., Ltd., Victoria, B.C.	75	Sheriffs, Imperial quintessence of true vanilla.	"Sheriffs" Imperial quintes-sence of true vanilla.	.263	.024	36.1	41595
"	13	"	"	41596	Action Bros., Victoria, B.C.	3	Empress Mfg. Co., Vancouver, B.C.	"Empress" brand.....	.136	.063	28.3	41596
"	14	"	"	41597	R. Erskine & Co., Victoria, B.C.	3	Pioneer Coffee Mills, Victoria, B.C.	"Star" brand.....	1.088	Nil.	26.5	41597
"	15	"	"	41598	W. A. Jameson Coffee Co., Victoria, B.C.	3	Empress Mfg. Co., Vancouver, B.C.	"Nector" flavouring ex-tract.	.063	.066	18.8	41598